

**Amendment and Response**

Applicant: John Wade et al.

Serial No.: 10/788,808

Filed: February 27, 2004

Docket No.: 200208190-1

Title: WIDE ARRAY FLUID EJECTION DEVICE

**BEST AVAILABLE COPY****REMARKS**

The following Remarks are made in response to the Non-Final Office Action mailed January 23, 2006, in which claims 2, 9-35, 39, 41, and 42 were objected to, and claims 1-43 were rejected.

With this Amendment, claims 4, 6, 20, 21, 29, 32-35, and 37-43 have been cancelled without prejudice, and claims 1, 2, 5, 7-13, 15, 17, 18, 22-28, 31, and 36 have been amended to clarify Applicant's invention.

Claims 1-3, 5, 7-19, 22-28, 30, 31, and 36, therefore, remain pending in the application and are presented for reconsideration and allowance.

**Claims Objections**

Claims 2, 9-35, 39, 41, and 42 are objected to because of various informalities.

With this Amendment, claims 20, 21, 29, 32-35, 41, and 42 have been cancelled without prejudice. The objection to these claims, therefore, is rendered moot.

Regarding claims 2, 9-19, 22-31, and 39, with this Amendment, each of these claims have been amended to correct the noted informalities.

In view of the above, Applicant respectfully requests that the objection to claims 2, 9-35, 39, 41, and 42 be reconsidered and withdrawn.

**Claim Rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103**

Claims 1, 4, 5, 10-12, 15-18, 20-22, 24-30, and 32-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Saunders et al. US Patent No. 5,541,629.

Claims 1-4, 10-14, 18, 19, 27, 30, 31, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson US Patent No. 6,471,320.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saunders et al. in view of In re Harza, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saunders et al. in view of In re Harza, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960) and further in view of Norton US Patent No. 6,309,040.

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Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saunders et al. in view of In re Harza, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960) and further in view of Anderson.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saunders et al. in view of Norton and further in view of Anderson.

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saunders et al. in view of Norton.

With this Amendment, claims 4, 6, 20, 21, 29, 32-35, and 37-43 have been cancelled without prejudice. The rejection of these claims, therefore, is rendered moot.

With this Amendment, independent claim 1 has been amended to clarify that the fluid ejection device includes a first set of N memory elements each storing a fire enable value, the fire enable value including one of an enabling value or a disabling value; a second set of N memory elements each storing a different one of N image data sub-blocks of an image data block, each image data sub-block including one of an enabling value or a disabling value; a third set of N memory elements each storing and receiving a different one of the N image data sub-blocks from a different one of the second set of N memory elements; and N fluid ejecting elements each receiving the fire enable value from a corresponding one of the first set of N memory elements and the image data sub-block from a corresponding one of the third set of N memory elements, wherein one of the fluid ejecting elements is enabled to eject a fluid when the fire enable value and the image data sub-block each are the enabling value.

With this Amendment, independent claim 18 has been amended to clarify that the fluid ejection device includes a fire enable register including a series of N memory elements configured to serially receive and serially transfer a series of fire enable values through the series of N memory elements; a data input register including a first set of N memory elements each storing an image data bit of a row of image data; a data hold register including a second set of N memory elements each coupled to and configured to receive the image data bit from a different one of the first set of N memory elements; and N fluid ejecting elements each coupled to and configured to receive one of the fire enable values from a different one of the series of N memory elements, and coupled to and configured to receive the image data bit from a different one of the second set of N memory elements, wherein each fluid ejecting

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element is enabled to eject a fluid when the one of the fire enable values and the image data bit each are an enabling value.

With this Amendment, independent claim 27 has been amended to clarify that the method of enabling N fluid ejecting elements of a fluid ejection device includes holding an image data value in each of N memory elements of an image data hold register, each memory element corresponding to a different one of the N fluid ejecting elements, each image data value being one of an enabling value or a disabling value; storing a fire enable value in each of N memory elements of a fire enable shift register, each memory element corresponding to a different one of the N fluid ejecting elements, each fire enable value being one of an enabling value or a disabling value; updating the fire enable value in each of the N memory elements of the fire enable shift register with a fire enable value from an adjacent memory element upon each cycle of a clock; and upon each cycle of the clock, providing to each of the N fluid ejecting elements the fire enable value from the corresponding memory element of the fire enable shift register and the image data value from the corresponding memory element of the image data hold register, wherein a fluid ejecting element is enabled to eject a drop of fluid when the fire enable value and the image data value each are the enabling value.

With this Amendment, independent claim 36 has been amended to clarify that the fluid ejection device includes N fluid ejecting elements; means for storing N image data values each corresponding to a different one of the N fluid ejecting elements and each being one of an enabling value or a disabling value; means for receiving and shifting the N image data values to the means for storing the N image data values; means for storing N fire enable values each corresponding to a different one of the N fluid ejecting elements and each being one of an enabling value or a disabling value; and means for serially transferring each of the N fire enable values upon each cycle of a clock and for providing to each of the N fluid ejecting elements upon each cycle of the clock the corresponding fire enable value from the means for storing the N fire enable values and the corresponding image data value from the means for storing the N image data values, wherein a fluid ejecting element is enabled to eject a drop of fluid when the fire enable value and the image data value each are the enabling value.

With respect to the Saunders et al., Anderson, and Norton patents, Applicant submits that none of these patents, individually or in combination, teach or suggest a fluid ejection

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device as claimed in independent claim 1, a fluid ejection device as claimed in independent claim 18, a method as claimed in independent claim 27, nor a fluid ejection device as claimed in independent claim 36.

In view of the above, Applicant submits that independent claims 1, 18, 27, and 36 are each patentably distinct from the Saunders et al., Anderson, and Norton patents and, therefore, are each in a condition for allowance. Furthermore, as dependent claims 2, 3, 5, 7-17 further define patentably distinct claim 1, dependent claims 19 and 22-26 further define patentably distinct claim 18, and dependent claims 28, 30, and 31 further define patentably distinct claim 27, Applicant submits that these dependent claims are also in a condition for allowance. Applicant, therefore, respectfully requests that the rejection of claims 1, 4, 5, 10-12, 15-18, 20-22, 24-30, and 32-42 and claims 1-4, 10-14, 18, 19, 27, 30, 31, and 36 under 35 U.S.C. 102(b) and the rejection of claims 6, 7, 8, 9, 23, and 43 under 35 U.S.C. 103(a) be reconsidered and withdrawn and that claims 1-3, 5, 7-19, 22-28, 30, 31, and 36 be allowed.

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**BEST AVAILABLE COPY****CONCLUSION**

In view of the above, Applicant respectfully submits that pending claims 1-3, 5, 7-19, 22-28, 30, 31, and 36 are all in a condition for allowance and requests reconsideration of the application and allowance of all pending claims.

Any inquiry regarding this Amendment and Response should be directed to either James R. McDaniel at Telephone No. (858) 655-4157, Facsimile No. (858) 655-5859 or Scott A. Lund at Telephone No. (612) 573-2006, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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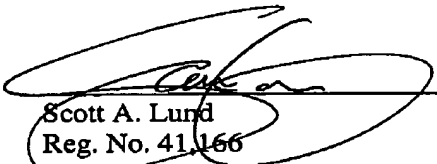
Respectfully submitted,

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**CERTIFICATE UNDER 37 C.F.R. 1.8:** The undersigned hereby certifies that this paper or papers, as described herein, are being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (571) 273-8300 on this 24<sup>th</sup> day of April, 2006.

By:   
Name: Scott A. Lund